

In the claims:

1. A method of real time optimizing transmission of a number of multimedia data packets between a multimedia source device and a multimedia display device coupled by way of a unidirectional main link arranged to carry the multimedia data packets from the multimedia source device and the multimedia display device and a bi-directional auxiliary channel arranged to transfer information between the multimedia source device and the multimedia display device, comprising:

providing a test pattern by the multimedia source device on the main link;

determining a transmission quality factor of the main link based upon the test pattern; and

optimizing the transmission of the multimedia data packets based upon the transmission quality factor.

2. A method as recited in claim 1, wherein the determining a transmission quality factor comprises:

determining a bit error rate based upon the test pattern by the multimedia display device;

sending the bit error rate to the source device by way of the auxiliary channel.

3, A method as recited in claim 2, wherein the optimizing comprises:

determining if the bit error rate is greater than a predetermined threshold value bit error rate.

4. A method as recited in claim 3 wherein the optimizing further comprises:

when the bit error rate is determined to be greater than the predetermined threshold bit error rate, then

determining if the transmission rate of the multimedia data packets on the main link is greater than a minimum transmission rate.

5. A method as recited in claim 4, wherein when the transmission rate is greater than the minimum transmission rate then,

reducing the main link transmission rate; and

determining the bit error rate based upon the reduced main link transmission rate.

6. A method as recited in claim 1, wherein the bi-directional auxiliary channel is formed of a uni-directional back channel configured to carry information from the display device to the source device and a uni-directional forward channel included as part of the main channel for carrying information from the source device to the display device in concert with the back channel.

7. A method as recited in claim 1, wherein the number of multimedia data packets are divided into a number of associated multimedia data packets streams.

8. A method as recited in claim 7, wherein the main link unit further comprises:

a number of virtual links each being associated with a particular one of the multi media data packet streams wherein each of said virtual links has an associated virtual link bandwidth and a virtual link rate.

9. A method as recited in claim 5, wherein a main link bandwidth is at least equal to an aggregate of the virtual link bandwidths.

10. A method as recited in claim 8 wherein each of the virtual link rates associated with each of the virtual links are optimized.

11. A method as recited in claim 1, further comprising:
detecting a hot plug event that automatically determines when an active display device is connected to the main link and the auxiliary link; and
commencing the optimization immediately subsequent to the detection of the hot plug event.

12. An apparatus for continuous optimizing transmission of a number of multimedia data packets between a multimedia source device and a multimedia display device coupled by way of a unidirectional main link arranged to carry the multimedia data packets from the multimedia source device and the multimedia display device and a bi-directional auxiliary channel arranged to transfer information between the multimedia source device and the multimedia display device, comprising:
means for providing a test pattern by the multimedia source device on the main link;

means for determining a transmission quality factor of the main link based upon the test pattern; and

means for optimizing the transmission of the multimedia data packets based upon the transmission quality factor.

13. An apparatus as recited in claim 12, wherein the determining a transmission quality factor comprises:

means for determining a bit error rate based upon the test pattern by the multimedia display device;

means for sending the bit error rate to the source device by way of the auxiliary channel.

14. An apparatus as recited in claim 13, wherein the optimizing comprises:
means for determining if the bit error rate is greater than a predetermined threshold value bit error rate.

15. An apparatus as recited in claim 14 wherein the optimizing further comprises:
means for determining if the transmission rate of the multimedia data packets on the main link is greater than a minimum transmission rate when the bit error rate is determined to be greater than the predetermined threshold bit error rate.

16. An apparatus as recited in claim 15, wherein when the transmission rate is greater than the minimum transmission rate then,
means for reducing the main link transmission rate; and

means for determining the bit error rate based upon the reduced main link transmission rate.

17. An apparatus as recited in claim 12, wherein the bi-directional auxiliary channel is formed of a uni-directional back channel configured to carry information from the display device to the source device and a uni-directional forward channel included as part of the main channel for carrying information from the source device to the display device in concert with the back channel.

18. An apparatus as recited in claim 12, wherein the number of multimedia data packets are divided into a number of associated multimedia data packets streams.

19. An apparatus as recited in claim 18, wherein the main link unit further comprises:

a number of virtual links each being associated with a particular one of the multi media data packet streams wherein each of said virtual links has an associated virtual link bandwidth and a virtual link rate.

20. An apparatus as recited in claim 16, wherein a main link bandwidth is at least equal to an aggregate of the virtual link bandwidths.

21. An apparatus as recited in claim 19 wherein each of the virtual link rates associated with each of the virtual links are optimized.

22. An apparatus as recited in claim 12, further comprising:

means for detecting a hot plug event that automatically determines when an active display device is connected to the main link and the auxiliary link; and

means for commencing the optimization immediately subsequent to the detection of the hot plug event.

23. Computer program product for real time optimizing transmission of a number of multimedia data packets between a multimedia source device and a multimedia display device coupled by way of a unidirectional main link arranged to carry the multimedia data packets from the multimedia source device and the multimedia display device and a bi-directional auxiliary channel arranged to transfer information between the multimedia source device and the multimedia display device, comprising:

computer code for providing a test pattern by the multimedia source device on the main link;

computer code for determining a transmission quality factor of the main link based upon the test pattern;

computer code for optimizing the transmission of the multimedia data packets based upon the transmission quality factor; and

computer readable medium for storing the computer code.

24. A method as recited in claim 23, wherein the determining a transmission quality factor comprises:

computer code for determining a bit error rate based upon the test pattern by the multimedia display device;

computer code for sending the bit error rate to the source device by way of the auxiliary channel.

25. Computer program product as recited in claim 24, wherein the optimizing comprises:

computer code for determining if the bit error rate is greater than a predetermined threshold value bit error rate.

26. Computer program product as recited in claim 25 wherein the optimizing further comprises:

computer code for determining if the transmission rate of the multimedia data packets on the main link is greater than a minimum transmission rate when the bit error rate is determined to be greater than the predetermined threshold bit error rate.

27. Computer program product as recited in claim 26, wherein when the transmission rate is greater than the minimum transmission rate then,

computer code for reducing the main link transmission rate; and

computer code for determining the bit error rate based upon the reduced main link transmission rate.

28. Computer program product as recited in claim 23, wherein the bi-directional auxiliary channel is formed of a uni-directional back channel configured to carry information from the display device to the source device and a uni-directional

forward channel included as part of the main channel for carrying information from the source device to the display device in concert with the back channel.

29. Computer program product as recited in claim 23, wherein the number of multimedia data packets are divided into a number of associated multimedia data packets streams.

30. Computer program product as recited in claim 29, wherein the main link unit further comprises:

a number of virtual links each being associated with a particular one of the multi media data packet streams wherein each of said virtual links has an associated virtual link bandwidth and a virtual link rate.

31. Computer program product as recited in claim 27, wherein a main link bandwidth is at least equal to an aggregate of the virtual link bandwidths.

32. Computer program product as recited in claim 30 wherein each of the virtual link rates associated with each of the virtual links are optimized.

33. Computer program product as recited in claim 23, further comprising:
detecting a hot plug event that automatically determines when an active display device is connected to the main link and the auxiliary link; and
commencing the optimization immediately subsequent to the detection of the hot plug event.